

REMARKS

Claims 1-4, 6 and 8 are now present in this application.

Claims 1 and 6 have been amended and claims 5, 7 and 9-16 have been cancelled.

Reconsideration of the application, as amended, is respectfully requested.

Amendments to the Claims

Support for the amendment to claim 1 can be found, for example, in originally filed Fig. 1. Support for the amendment to claim 6 can be found, for example, in page 5, line 24 of the originally filed specification. Accordingly, it is respectfully submitted that no new matter is present in the foregoing amendments.

Rejection under 35 USC 112

Claims 6 and 7 stand rejected under 35 USC 112, first paragraph. This rejection is respectfully traversed.

In view of the foregoing amendments, it is respectfully submitted that the claims would enable one of ordinary skill in the art to make and/or use the invention. Accordingly, reconsideration and withdrawal of the 35 USC 112, first paragraph rejection are respectfully requested.

Rejection under 35 USC 103

Claims 1-8 stand rejected under 35 USC 103 as being unpatentable over Fitzgerald, U.S. Publication 2002/0125471, in view of Puchner, U.S. Patent 6,358,806. This rejection is respectfully traversed.

The Examiner asserts that “Fitzgerald discloses a strained-channel MOSFET structure (Fig. 5A), comprising: a substrate; a graded SiGe layer (502) on the substrate; a relaxed buffer layer (506; SiGe) on the graded SiGe layer; a strained channel-forming layer (508); a gate dielectric layer (510); a polysilicon gate electrode (512); and source and drain regions (513, 514)”.

Independent claim 1 recites (emphasis added):

1. A strained silicon carbon alloy MOSFET structure, comprising:
 - a substrate;
 - a graded SiGe layer on the substrate;
 - a relaxed buffer layer on the graded SiGe layer;
 - a strained silicon carbon alloy layer on the relaxed buffer layer acting as a channel;
 - a gate dielectric layer in contact with the strained silicon carbon alloy layer;**
 - a gate electrode on the gate dielectric layer; and
 - a source region and a drain region on the substrate opposite and adjacent to the gate electrode.

It is clear that the strained silicon carbon alloy MOSFET structure of claim 1 comprises a strained silicon carbon alloy layer on the relaxed buffer layer acting as a channel, and **a gate dielectric layer in contact with the strained silicon carbon alloy layer.**

Referring to column 1, lines 61-64, Puchner discloses, “The above and other needs are met by a method for fabricating a semiconductor device on a substrate, where the improvement

includes *forming a strained silicon carbide channel layer and a silicon capping layer on the substrate.*"

Further, in column 2, lines 8-11, column 3, lines 60-65, and column 4, lines 16-22 of Puchner, **the silicon capping layer 21 on the strained silicon carbide channel layer 20** is required to achieve the function of the silicon carbide CMOS channel disclosed.

Referring to MPEP 2143.01:

3. The proposed modification cannot change the principle of operation of a reference

If the proposed modification or combination of the prior art would change the principle of operation of the prior invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious.

According to MPEP 2143.01, wherein the proposed modification cannot change the principle of operation of a reference, **the silicon capping layer 21 on the strained silicon carbide channel layer 20** is required in the combination of Fitzgerald and Puchner, in order not to change the function of the silicon carbide CMOS channel disclosed by Puchner.

MPEP 2142 reads in part:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In connection with the third criteria, MPEP 2143.03 goes on the state:

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

The combination of Fitzgerald and Puchner does not teach a **gate dielectric layer in contact with the strained silicon carbon alloy layer**, as required in independent claim 1. Indeed, the gate dielectric layer in combinations of Fitzgerald and Puchner is not in contact with the strained silicon carbon alloy layer due to the silicon capping layer on the strained silicon carbide channel layer.

It is therefore respectfully submitted that, even when taken in combination, Fitzgerald and Puchner fail to teach or suggest all of the limitations recited in independent claim 1. It is therefore respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the strained silicon carbon alloy MOSFET structure of independent claim 1 and its dependent claims. Reconsideration and withdrawal of the 35 USC 103 rejections are therefore respectfully requested.

Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

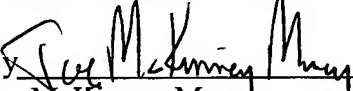
Application No. 10/791,816
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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